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## FLEUSS'S METHOD OF BREATHING UNDER WATER.

HITHERTO, as is well known, when a professional diver went under the water to search for any object, or to assist in other operations, he wore a particular kind of dress, and was supplied with air by a tube connected with a pumping apparatus. All this is now to be given up. A process has been invented of breathing under the water without any of the ordinary appliances. The invention is due to the perseverance and skill of Mr Fleuss, an officer of the mercantile marine, who at sixteen years of age went to sea as an apprentice, and afterwards served in several ships. On passing the examination for second-mate, he joined the Peninsular and Oriental service, and visited most parts of the world. The promotion being somewhat slow, Mr Fleuss subsequently attached himself to the British India Company, and speedily attained the position of second-officer. This life gave him many opportunities of recognising the importance of an improved method of diving; and as he was fond of mechanics and scientific studies, he speedily made himself master of the subject. He is still a young man, of twenty-eight years of age. His invention offers a gratifying instance of what may be effected by study, determined perseverance, and independent exertion; and we feel assured that when it becomes fully known, it will be employed for many important purposes. After maturing his invention, and personally demonstrating its validity by going under water at public exhibitions in London, Mr Fleuss patented the process in England and other countries. What we have therefore to say on the subject is from ascertained facts, and however extraordinary, is beyond the reach of cavil.

By Mr Fleuss's process any person with sufficient nerve, and who is accustomed to diving, can exist for hours beneath the water without connection with the surface. A special dress with a helmet inclosing the head requires, however, to be employed. The dress has much the outward

appearance of that hitherto used. The helmet is entirely closed, for there is no pipe to the air above water, as is customary with ordinary divers. The power of breathing depends on means within the sphere of the helmet and dress. To understand this, we must consider the composition of the air.

As is generally known, the atmosphere we breathe consists one-fifth of oxygen, and the remaining four-fifths of another gas called nitrogen. The mixture of these two gases is a strictly mechanical one; they have not entered into any chemical combination. The oxygen is the supporter of life; the nitrogen merely diluting it, so to speak, to a proper degree, for the purposes of our lungs. In breathing, the oxygen is partially lost by absorption into the system, and the exhaled air contains a large proportion of carbonic acid or—to call it by its more modern name—carbon dioxide, a gas which is a poison to animal life. According to Mr Fleuss's process, a continuous supply of oxygen is procured from the helmet, where it is stowed in a compressed state, the supply being regulated by a valve under the control of the diver. The original nitrogen in the lungs remains unaltered, and can be breathed over again along with a due admixture of the oxygen. The strange thing is the disposal of the deadly carbonic acid gas. What becomes of it? Is it bubbled up through the water? No, for the oxygen and nitrogen would go with it. A well-known chemical action is taken advantage of by causing the carbonic acid which is given off, to be absorbed by caustic soda; the result being the formation of carbonate of soda. The caustic soda is contained in a small tin or ebonite case placed in the body of the dress. It is in solution, and confined in the pores of spongy india-rubber, which is perhaps the only soft material impervious to its corrosive action. A proper arrangement of tubing causes the whole of the exhaled air to pass through this case, which requires emptying and recharging about once a week—supposing that the apparatus is in daily use. To sum up the means by which Mr Fleuss breathes in a dress

hermetically sealed from external air: He takes down a supply of compressed oxygen gas, dilutes it with the nitrogen—which is naturally present in his lungs and in the diving dress when he puts it on, and which remaining unaltered, he can, as we have already shewn, breathe over and over again; and by bringing the exhaled carbonic acid in contact with caustic soda, transforms the deadly gas into harmless carbonate of soda. Such is Mr Fleuss's invention or discovery, which will no doubt astonish every one with its beautiful simplicity, and call forth the usual amount of surprise in such cases, 'that nobody thought of it before.' Possibly many may have thought of it before. But it requires an unusual combination of perseverance, energy, chemical knowledge, and mechanical skill, to carry such thoughts to practical trial and ultimate success. Mr Fleuss not only studied chemistry to carry out his pet idea, but he made his apparatus almost entirely with his own hands. Moreover, he donned his dress, fitted with this home-made apparatus, and descended—the first time he had been under water in his life—in public, and remained under more than one hour. So to the qualities already mentioned, we must certainly add that of indomitable courage.

The advantages of Mr Fleuss's apparatus over that which it is most certainly destined to supersede, are numerous. There is no doubt too that its use will not be confined to subaqueous work. It might well form a most valuable addition to our fire-escape stations, for it would enable the wearer to enter into the densest smoke without any risk of suffocation. Its use in the rescue of unfortunate miners would also be possible without any fear from the deadly choke-damp. Wells and vats, where the heavy carbonic acid forms a layer beneath which no human being can go without almost instant suffocation, will also be penetrable by the wearer of Fleuss's apparatus; and in these several ways the apparatus will probably help in the saving of many lives. The advantages of the new diving system are mainly these. The diver requires but one attendant, to whom he can signal in case of need. The absence of an air-pipe relieves him of many anxieties as to his safety. He is free to move in every direction; and can creep under wreckage in a manner that the ordinary diver would consider hazardous, if not impossible.

By experiments and tests as to temperature and pulse after immersion for more than an hour, it has been conclusively proved that Mr Fleuss's system of breathing under water is attended by no inconveniences. Last, and by no means least, the expense of the outfit is estimated at one-half that required by the older method. The absence of pumps and gearing will at once account for the reduction.

In a manner suitable for a popular journal, we have now described this remarkable invention, which, had it been available a few months earlier,

might have led to the speedy recovery of the bodies of those who suffered in the Tay Bridge disaster, of whom, up till the time we write, only about one half have been found. What a triumph in art, and what a solacement to the feelings it would be, if by Mr Fleuss's process a great proportion of the still missing bodies were recovered for burial by friends and relatives!

## A LIFE'S ATONEMENT.

### CHAPTER XII.—HISTORY.

*The broken windows winked and leered with patches.*

DR BRAND sat in an easy-chair and smoked a quiet cigar after the fatigues of the day. You must recognise him, though you have spent so small a time in his society. Dr Brand was not a man to be easily forgotten, having been once encountered. In the first place, he had the advantage of physical size wherewith to impress you. In the second place, his aquiline nose and his square jaw, his keen and somewhat too imperious eyes, his big broad head and wavy mass of grizzled hair, were each memorable. A great loose-limbed, masterful-looking man, with kindnesses in him, and coarsenesses. A man who was alive to the very ends of his hair, and who rejoiced in life. An old Viking sort of man, who ate and drank hugely, worked inordinately, laughed out of all form and fashion, had gigantic rages, and strange fits of tenderness—altogether, a remarkable man.

Seated opposite was the Doctor's wife, who was just such a contrast to him as such a man might delight in—a pretty little creature who, though thirty, looked no more than twenty. The kind of woman who seems to be made for the express purpose of idolising the Dr Brand kind of man. You might almost guess how much she idolised him, by the satisfied expression of her eyes as they rested upon him in placid watchfulness of all his loose and careless movements.

'Ma mie,' quoth the Doctor, 'my practice increases enormously.'

'Indeed, James?'

'I shall shortly have to retire in self-defence. I have a whole mob of people who are trying to absorb my time. They live in a court off Oxford Street, and are not worth one penny per annum.'

'I suppose not.'

'I might,' said the Doctor, rolling himself round in his chair to look at her—'I might say, "Let the parish doctor see to 'em." But he can't see to 'em. I don't know him; but if that man does his duty, he will work himself to death. Six of him would be worked to death.'

'Is there so much sickness?'

'The wonder isn't that there's so much sickness, as that there is so little. You'd say so if you saw the hole they live in. I thought I knew the London slums, but God bless my soul,' said the Doctor, rolling round again, 'I couldn't have believed it.'

'What made you go there?' asked his wife.

'Do you remember Penkridge?' asked the Doctor, in return.

'Penkridge? Do you mean the odd little man

who kept the stationer's shop in Camberwell. O yes; I remember how I used to laugh at him, he was so comically civil.'

The Doctor set his feet upon a chair before him and lolled there broadcast. He smoked for a while, and answered: 'You wouldn't laugh at him now, *ma mie*. Such a ragged, drunken, helpless, hopeless scoundrel—such a lost, tearful, lachrymose, whining villain. A dog of such ill odour, spiritually and physically.'

'I think I remember to have heard,' said Mrs Brand, 'that he got into the hands of some dreadful person, who ruined him.'

'Bah!' roared the Doctor with sudden energy. 'That kind of man always gets into the hands of people who ruin him. The miserable fool of a fly invites the spider to live in his neighbourhood; he makes a chum of him, and helps him to spin his web. I do protest,' continued the Doctor, struggling up to say it, and sitting with a hand upon each elbow of his chair—'I do protest that I have no atom of sympathy with that sort of creature. I can get up no pity for him.'

'Now, I am sure, James,' said the Doctor's wife, 'that you have been helping him.'

'Helping him!' growled the Doctor behind his cigar like an angry bassoon. 'I know I've been helping him. But I have the grace to be ashamed of myself. What is it that favourite of yours says—the she-poet—Whatsheername? "I feel as if I had a man in me despising such a woman." To help a man of that sort is a waste of good material. There is only so much medical talent in the world. Not half enough to supply the world's wants—not half enough, I mean, to supply that part of the world which deserves to have its wants supplied. Nine-tenths of the ridiculous world we live in is so hopelessly rotten, that a man tinkers at it to no purpose. It can't be mended—it can't be restored. The wisest and kindest thing to do would be to poison ninety per cent. of the people of this planet, and start afresh with the healthy remainder.'

'I have heard that dreadful theory before,' said the Doctor's wife. 'But how are you going to decide who is to live? Suppose some dreadful person wished to poison me?'

'I'd knock his head off,' said the Doctor promptly. 'Let me demonstrate your right to exist. I am a man of unusual abilities; I am profoundly versed in the noblest of all human arts; I have energies which are absolutely unwearyable, and I get through the work of ten ordinary men daily.'

'I have heard all this before,' responded Mrs Brand, laughing; 'and used to believe it until I got married and disillusionised. But we are not concerned with *you* at present. What is my right to exist?'

'What a lovely sex it is!' said the Doctor; 'always waits to hear an argument out before it dreams of speaking. Your right to exist, my dear, is that I desire you to exist. If I am useful for ten, I may claim life for two.'

'Suppose your desire should cease, you mountain of egotism?'

'Your right would vanish, you atom of charms!'

'James—you're a monster.'

'Jennie—you're an angel!'

'A highly satisfactory termination,' quoth the Doctor's wife, 'to a most unsatisfactory debate.'

At this the Doctor rose, picked up his wife's chair with his wife in it, kissed the little lady, set her down again, burst into a great roar of laughter, and dropped back into his arm-chair. Mrs Brand accepted this as though she were quite used to it, and regarded the laughing giant with the same look of calm and watchful affection as before. 'What were you saying about Penkridge, James?' she asked after a little pause.

'It was his wife I was thinking of. She died last night.'

'What did she die of?'

'She died chiefly of Penkridge, I should say. But the shameless waste and sinful luxury of this big London helped her. In plain English, she died of hunger.'

'James!' exclaimed the Doctor's wife; 'you don't mean that?'

'Yes; I mean that. She died of actual hunger, Jennie; and that tearful villain her husband was half-drunk. Think what that means.'

'How dreadful!'

'Do you see?' said the Doctor, sitting up again. 'He had money enough to drink with somehow. She died of starvation.'

'Perhaps some one gave him drink who would not give him money.'

'I hope so.' The Doctor subsided again. 'Jennie,' he went on, 'these things hurt me. If a man could do anything in such a case—I if I could have dropped Penkridge, for instance, from the garret window. That man's squalor and degradation,' continued the Doctor keenly, 'are not a misery to him. He finds a compensation in idleness and an occasional burst of drinking, and more than all, in his wailings about his having been ruined and so forth. There are some men to whom it's a positive comfort to have an injury done to them; they find a luxurious joy in the ability to complain that they have been damaged.'

'Do you know, James,' said the Doctor's wife, coming nearer, and sitting on an ottoman beside him, with a hand upon his arm—'do you know that I feel myself very idle and very useless? I daresay it's very foolish in me, but I feel almost sorer for people who won't help themselves than I do for those who can't. I mean that when people won't help themselves, and don't even want to try, it seems to imply such a dreadful inward want somewhere. You know what I mean, don't you?'

'Perfectly.'

'James, I have been thinking seriously, and this talk reminds me again. I must do something; I must justify my claim to exist, dear.'

'*Ma mie*,' said the Doctor, throwing away his cigar, and taking one of her hands in both his, 'your clear mission is to give heart and hope to me. If it weren't for you, my energies would be wasted. I should have turned myself into a hermit, and have gone to live in the cave of speculative science, long ago, if I hadn't had you beside me.'

Mrs Brand looked at him smilingly, and shook her head. 'I must do something,' she reiterated. 'Now, shall I tell you what I have been thinking?'

'Wait a moment. Let me compose myself to listen. Give me a glass of claret, whilst I light another cigar.—Thank you, I am ready now.'

He set his slippered feet upon the chair before him, and composed his huge figure comfortably. His eyes had lost that too imperious glance. He stroked the little hand that rested upon the elbow of his chair.

'I have been thinking, James,' said Mrs Brand seriously, 'that I can see a clear way of doing good, and I want to ask your advice about it. It seems to me that a great many benevolent enterprises fail, dear, because the people who start them are anxious to do too much, and to do it in an unnatural way. Lady-visitors, for instance.'—The Doctor nodded, to signify attention.—'Now a lady goes into one of the places you were speaking of just now, and says a few kind words, and does a few kind things to a great many people. I hope it does good. I don't think it can fail to do some good. But wouldn't it be better, dear, to single out some one hopeful case—the case of a girl perhaps—and confine one's self to that case, not carrying it away from the place, but leaving it there, as a sort of wholesome centre, out of which something might possibly grow? I want to try some such experiment, James; and I want to get one or two other people to do the same. It seems to me that one clean room and one tidy figure in such a place as Bolter's Rents must be, might be of great service. And one clean heart and well-ordered mind might do incalculable good.'

'Have you thought at all of the counteracting influences?' asked the Doctor.

'Yes. I am really not too sanguine. I am only thinking of what might happen. But isn't there likelihood enough to make it worth while to try?'

'Put yourself for a moment,' said the Doctor, 'in the place of your imaginary girl. You have of course a surety against her gross temptations, which she couldn't have. Think how anybody not so vile as themselves would grow to loathe the people who live there. The place is a moral nightmare. You would grow sick at physical and spiritual filth, and would do one of three things: sink down to it—go mad over it—or run away from it.'

'You forget,' persisted the little lady, arguing her case more warmly. 'I am squeamish by training, as no girl brought up as any girl would have to be in such a case, could possibly be. I don't want to make a lady. I want to help to rear a decent Christian woman, who shall be clean and neat and sober, and know the ways of the people, and be able to do more for them than anybody from the outside. And I think that's possible.'

'Did you ever see Bolter's Rents?' asked the Doctor grimly.

'No,' answered the Doctor's wife.

'Come and see it now,' said the Doctor, rising. 'Ah! I was afraid you would not be particularly eager.'

'I am quite ready to go, James.'

'Then, put on your plainest bonnet and your quietest shawl. It's a fine moonlight night, and Bolter's Rents is not far from Wimpole Street.'

Mrs Brand left the room. If the truth must be told, her spirits faltered somewhat at the thought of a visit by night to such a place, and her enthusiasm cooled a little. But remembering her husband's familiarity with the place and people,

and recalling her confidence in him, she attired herself as plainly as she could, and rejoined the Doctor, who was already drawing on his gloves in the hall. They went out together arm-in-arm, through quiet ways, until they emerged on the long-drawn glare and bustle of Oxford Street.

'Have you your vinaigrette?' queried the Doctor.

'No, dear,' responded Mrs Brand.

Dr Brand turned into a chemist's shop and purchased a bottle of smelling-salts. 'Put that in your pocket,' said he; adding with an almost tragic solemnity: 'You may possibly want it. The scents are tremendous.'

Walking on the right-hand side of the street and facing towards Holborn, they turned abruptly into a narrow and low-browed passage, which yawned like a black mouth on brilliant Oxford Street. The passage was too narrow to allow of their walking abreast; and with a brief injunction to follow and a reassuring tap upon his wife's shoulder, the Doctor led the way. Looking past his ponderous figure, Mrs Brand saw before her a long dim vista of murky building, with one solitary light gleaming at the far end of it. The way underneath her feet grew moist and spongy; a faint and sickly odour greeted her nostrils. She laid her hand upon the bottle of smelling-salts, but resisted the inclination, determining to shew no sign of annoyance so soon. Entering on the court which lay beyond the passage, the two went side by side once more. One or two women, unutterably coarse and frowsy, stood in a little patch of moonlight with their hands under their aprons, and their hair in wild disorder. They lolled against the wall, or stood uprightly vacant, or shambled loosely from side to side, but said nothing, and were without occupation. There were one or two hulking lads engaged in coarse horse-play under the shadow of the houses on the other side of the court. The broken windows winked and leered with patches. If by chance a whole window was anywhere left, it stared out on the moonlight, vacant, blank, and blind. A house is always more or less human. The houses in Bolter's Rents were like humanity in vile decay. A door hanging stiffly from one useless hinge suggested lockjaw. This wall, which bowed inward until it seemed a wonder that it stood, had in it a reminder of the looks and bearing of a broken-down old debauchee. There was a mere hole where the garret window should have been, which looked in its dark blankness like the black patch over an eye. A great beam of timber which propped up the building, looked like the stick upon which that bankrupt old blackguard leaned. Rusty bars of iron passed from this ruin to the buildings on either side of it, as though the hoary rascal were chained to the companions whom he had by bad example led hither. They leaned upon him from either side, stupid and hopeless, and rapidly coming to his own sad case. Everywhere dilapidation and decay. Everywhere an air of shameful ruin, and an air of shame, as though the very walls and windows were conscious of their wretched plight, and had hidden away here from the gay and brilliant street outside. The end of the court was deserted, and the solitary lamp shewed nothing but an open doorway gaping darkly underneath it. Mrs Brand felt an almost unconquerable inclination to seize her



husband's arm and beg him to come away. Nothing but a feeling of shame restrained her.

The Doctor paused there, and said: 'This is the house I visited last night. You are not afraid to go in?'

'No,' answered his wife, belying her own quaking heart.

'You are quite safe with me, dear,' said he, taking her hand in his, and speaking in a cheerful tone. 'The steps of this establishment are eccentric. Step carefully after me, and let me keep your hand.'

They went up in the darkness until they came to the top of the third flight of steps, where the Doctor tapped at a door.

'You're mighty polite, whoever y'are,' said a voice inside with a tone of sarcasm. 'But we're not that private here that ye mayn't walk in.'

Dr Brand pushed open the door and entered, relinquishing his companion's hand.

'Is it you, Docthor?' exclaimed the owner of the voice—an Irishwoman, not uncomely in aspect, nor yet dreadfully unclean.—'But who's that with ye?' she asked sharply and suspiciously.—'Oh, a lady.—I beg your pardon, ma'am.—But they're after Mike, sor, I'm afraid, an' it makes me that nervous. Will ye look at the choild?'

Mrs Brand looked round the room, and saw the old tea-chests which did duty for chairs, the larger chest which did duty as a table, the bed of sacking, the tattered hanging which parted off one corner of the chamber. Nothing else.

'The little gyurl's up-stairs with the choild,' said Mrs Closky; adding with a face and voice so significant that it struck the attention of Mrs Brand at once: 'She's watchin'.' With that she left the room; and Mrs Brand turned to her husband.

He read her glance, and answered: 'The body of that poor woman lies above. The rats here are as hungry as she was before she died.'

'James, James!' cried Mrs Brand, clinging to him. 'Oh, why did I dare to come into this dreadful place!'

'Hush!' said the Doctor, almost sternly. 'Let me think better of you than this, Jennie.—Come, come,' he added in a softer tone; 'take courage. This is but a little part of that pandemonium in which you fancy you could minister. There is nothing here but misery. This house is the most orderly and decent in the court.' He ceased there; but turning round to the window, cried inwardly, in a silent rage of pity and emotion: 'O God! would it be a crime to give a sleeping-draught to every soul within it, and burn this hideous rookery down!'

He turned and took his wife's hand again, and found her trembling. He put his arm about her and drew her to his breast. Thought is swift; and as he held her there for a moment, he thought of all the placid quiet of her lot, the purity of her gentle life, the comfort and security which reigned about her. He thought too of his own chances in life, so favourably ordered, so smoothly progressive from good to better. He thanked God for these things; but a moment after, half-recalled the thanksgiving; for it seemed to him almost blasphemous in its selfishness that he should be thankful for that which gained a poignant bliss from such an awful contrast.

His wife withdrew herself from his embrace.

'I am stronger now, James,' she said, speaking with a self-possession which astonished herself. 'I think I am the more resolved for coming; indeed I am. I had read of things like this,' she continued, her eyes greatingening as she spoke; 'but I never realised them before.'

'What you have seen and heard so far, *ma mie*, is nothing,' the Doctor answered. 'This squalor'—pointing round the room—'is nothing. The ugly fear up-stairs is common to places such as this. Vice is the seed from which the real horror of these places springs. Of that you have seen nothing—shall see nothing, if I can advise you.'

His wife returned no answer; and in another moment they heard a footstep and a weakly wailing voice upon the stairs; and Mrs Closky entered with the child. By the Doctor's orders, she took off such miserable clothing as it wore, and was about to lay it on the larger chest with a shawl underneath it, when Mrs Brand whipped off her own shawl, and deftly folding it, laid it on the chest beneath the other, to make the temporary couch a little softer. Mrs Closky looked at her and at the rich dress which now stood revealed, but said nothing.

The Doctor stooped to examine the child. 'Has the parish doctor been here, Mrs Closky?' he asked.

'Yes sor. He kem an' lift the death-paper, sor, an' looked at the choild. An' he says her inwards isn't damaged, but her back's twisted for loife; an' he lift a liniment.'

'Let me see it,' said the Doctor, still bending over the child. 'Is this it? H'm. No harm—and no good.' Then after a pause: 'I am afraid he is right about the child. Yes; he is right.'

Mrs Brand bent above the child also. Its feeble wail troubled her, as it might trouble any woman. 'Can I send it anything from the house, James?' she asked her husband.

He waved his hand in answer, as if asking for silence, and turned to Mrs Closky. 'Can you bring the child to my house to-night?'

'O yes sor,' answered Mrs Closky readily.

'Then do so—in an hour.—Now, *ma mie*, let us go.'

Mrs Closky lifted up the baby and the shawl. Mrs Brand looked at her own shawl lying on the chest, and then at the woman's bare shoulders; for Mrs Closky was innocent of what I believe the women call 'a body,' and had bestowed upon the baby the only covering her shoulders had. The Doctor saw the glance and read its meaning, but settled matters by taking up the shawl and wrapping Mrs Brand carefully up in it. They went carefully down the dark and creaking steps, and emerged from the court; and in another minute were back in Oxford Street, with its brilliant gas-lights and its hurrying crowds.

'I might have left it with her, James,' said the Doctor's wife, after a pause, during which they had reached one of the quieter streets.

'It would have been pawned in the morning,' the Doctor answered. 'Give the woman something cheap, unpawnable, and fragmentary, and you do her a charity. Give her anything pawnable, and her husband, on returning home, will knock her down to rob her of it, and will get drunk on the proceeds.'

Mrs Brand made no reply, but mused on these

things sorrowfully, hoping within herself that the evil was not quite so evil as her husband painted it. As they walked quietly along together and came near to the end of the street, a man suddenly darted round the corner, planted himself with his back against the wall, and stood there in shadow. The Doctor directed a glance at him in passing, and recognised Michael Closky. Knowing what he knew, it was not unnatural that the Doctor should suspect mischief of some sort. It was not his business to help the police, if Michael had upset one of the force, or in a playful ebullition of feeling had taken a cast in pewter from the face of a pot-boy, but he felt a momentary curiosity. Turning into the street from which Closky had so suddenly emerged, he found it quiet and deserted. There was no sign of pursuit. There was not a human being on the causeway. Half-way up the street there was an open door, at which two men stood smoking. As the Doctor and his wife went by, these two bade each other a friendly good-night, and one, closing the door, remained inside, whilst the other, gaily swinging his cane, tripped down the steps, humming a muffled fragment of an air behind his cigar. Dr Brand recognised in him a German Jew who once upon a time was a patient of his. This German Jew was something in the City, the Doctor remembered in an absent sort of way—an agent or something of that kind, whose name was Tasker. He gave no second thought to the gay foreigner, but passed on. And Tasker, unwitting of the darker shadow which nestled in the shadows round the corner, went merrily towards it, humming a muffled fragment of an air behind his cigar.

*(To be continued.)*

#### STORY OF THE PRESSGANG.

I WELL remember when a boy being frequently sent for a week to stay with an old uncle during some part of my holidays, and the pleasure I experienced in inducing him to relate some of the adventures of his past life, which had for the most part been spent at sea. In his young days the navy was equipped for the most part by boys, and men who were pressed into the service whether they liked it or not. Pressgangs were therefore held in no little dread by peaceable shore-going folks. My uncle was a good-humoured, kindly old gentleman, with a thick fringe of gray hair, and a clean shaven face, who delighted to teach me the mysteries of tying knots and splicing ropes or any other bit of sea-craft, which he said might be useful to me some day. The only singularity about him that I remember was, he never partook of tea, but had his pipe and a jug of ale in the evening instead. He was always ready at such times to tell me about his sea-life—to spin a yarn, he called it.

Well, my boy, said he upon one occasion, you want to know if I was ever pressed into His Majesty's service. Yes; I was once, and a good many times I have had a sharp run for it, to escape. I had just come home from a voyage in an Indiaman, and was glad to get a spell on shore, though it was dangerous work at that time, as there were so many crimps and pressgangs about in every sea-port town. I was staying with my mother in London, and was,

as I thought, well disguised; but there is something about a seafaring man that betrays his calling, however much he may try to hide it. Well, I was strolling down Tower-Hill way, just to see how things were going, when as I turned into Trinity Square, my heart leaped into my mouth as a strong hand was laid on my shoulder, and I heard the words: 'Ah! my fine fellow, you seem just the boy for us. Where do you hail from? His Majesty wants you to come and have a glass of grog at his expense.' I was surrounded by half-a-dozen strapping fellows; and I knew that I was caught, and that resistance was useless. I was walked off, in the king's name, to the Tower stairs, and put on board the tender lying off the Tower. The next morning I was brought up before the naval officer in command to give an account of myself. My denials and protestations of being innocent of the sea were scouted with derision. I was cut short by being asked if I would go as a volunteer or as a pressed man. We sailors knew that pressed men were looked upon with suspicion, and not trusted, never allowed to go on shore, and stood no chance of promotion. It was a common saying, 'One volunteer is worth ten pressed men;' so I perforce volunteered. I liked the merchant service best, for somehow the navy had got a bad name; but I was young, and did not care much. I thought if I did my duty it would be all right.

In a day or two I was sent, with about a hundred and twenty others, to the Downs, where the fleet was lying. Being a smart young fellow and a volunteer, I was drafted on board the flagship of Admiral Duncan, and after a while was made captain of a gun. The fleet consisted of sixteen sail of the line, and our cruising-ground was off the coast of Holland, the object being to watch the Dutch fleet, commanded by Admiral Van Winter, then lying in the Texel. I was fortunate in being drafted into the Admiral's ship, as we had a very fair crew. The other ships were not so well off; there was but a small sprinkling of real blue-jackets among their crews, which were made up for the most part of pressed men, who were always more or less sulky and discontented. The remainder were some of the worst characters to be found in sea-port towns. The 'cat' was going every day on board some ship of our fleet. Officers were tyrannous; the discipline harsh; provisions bad; and for the slightest fault a man's grog was stopped, which does not add to the sweetness of a fellow's temper at any time. One morning at daybreak, the Admiral was signalled that a rebellion had broken out on board one of the ships. It spread to others, and a mutiny prevailed on board nearly all the ships, which placed the Admiral in a very critical position; for if the Dutch had known it, and had come out to fight us at that time, they might have taken nearly all our ships without any resistance. By judicious management, however, the rebellion was quelled; a few of the ringleaders were hanged at the yard-arms of their ships, and some were sent home to be dealt with by the authorities at Ports-mouth.

The Dutch wanted to get out of the Texel, and join the French fleet at Brest; but we kept the blockade so closely that they had no chance without fighting us, which was what we wanted. We had nasty weather at the beginning of October;

and during a storm, when our ships were scattered, they stole out in the night, and had made some way over towards the French coast before they were discovered. Our signal-guns, however, soon brought our ships together and cut off their escape; some long shots were exchanged, and a good deal of fine seamanship was shewn on both sides—for the Dutch are very good sailors, though slow—before we got well into action. I had been laid up for a week with the rheumatic fever. I was so bad I could not turn in my hammock; but when the shot began to crash into the ship, I got so excited that all the fever left me, and I tumbled out, went on deck, and took charge of my gun, a sixty-four pounder. There are usually from eight to ten men for the working of a gun. The first man I lost was assisting to run out the gun, after loading, by prising the hind-wheel of the gun-carriage with his rammer, when a shot came in, passed across his back harmlessly, but caught his projecting elbow, carrying the joint clean away, and leaving his arm hanging by a strip of skin. We were fighting with a ship larger than our own, broadside on, when a small ten-gun brig drew up astern and commenced raking us. Of course the shot swept the whole length of the deck, and did more mischief than our big antagonist.

The confusion caused by this raking fire was something unlooked for; but the remedy was at hand. The guns on the other side were shotted and all ready for action, when the order was passed along from the quarter-deck to man the starboard guns. By forging ahead we escaped being raked by our larger antagonist; and swinging half round, before the little wasp was aware of our manoeuvre and could draw off, we poured into her a broadside that did not need repeating. Her spars came crashing on deck; she gave a lurch or two like a thing in pain, and went down stern foremost; for our guns were depressed, and had riddled her through from deck to keel. We got into position again with our enemy, which was no easy matter, for she tried to get her broadside into us, end on, to sweep us as we worked round; but we were too quick for her, and came round on the other side, which was well for us, for our larboard guns were getting hot, and two or three had come to grief. We had lost a great many men. Three had been carried below from my gun, and I was just taking sight for my next shot, when a large splinter struck me on the shin, and brought me down. These splinters do much mischief; as the shot comes through, it splits off the wood from the inner side and sends the pieces flying in all directions. My leg was not broken, but the bone was badly splintered. I crawled down into the cockpit, where the surgeons were hard at work, and the assistants were ready to put a tourniquet on the bleeding stump of leg or arm, directly a man was brought down, to prevent his bleeding to death before he could be attended to; for each had to wait his turn, which might be an hour or more in coming. When it did come, there was no time for any sentiment or sympathy; the work had to be done, and that quickly. The groans and cries were heart-rending, and the call for water incessant. The best was done, no doubt, under the circumstances. However kind-hearted a naval surgeon may be, there is no time in the heat of action to console with his patients. He

needs a strong nerve, cool judgment, and steady hand to do the best he can at the moment for the sufferers; and all this has to be done with the roar of cannon and the crash of shot going on overhead. It was an awful time and scene; and if I could have crawled out of that cockpit again, I should have done it; but I could not move my leg, as it had become quite numb. My turn came at last. I was lifted on to the table heart-sick, least I should hear the sentence I had heard so often pronounced upon others: 'Can't be saved; off with it!' The head-surgeon examined my leg quickly and carefully, but not over-tenderly; clapped me on the shoulder, and said: 'All right, my man; you'll do: we shan't have to remove it this time;' and turning to an assistant, said: 'Bandage it tightly; I'll see to him to-morrow.'

By this time the fighting was nearly over; our antagonist had struck; and altogether we had taken eight sail of the Dutch fleet and some smaller vessels. It was considered a brilliant victory, the Dutch admiral Van Winter being taken prisoner. Our Admiral was afterwards rewarded with a pension of two thousand a year. Two days after the battle, my fever all came back again, and I had a bad time of it. The fleet, with the prizes in tow, made the best of its way to Portsmouth, where all the sick and wounded were landed. I was sent on shore with the others; but my leg was very troublesome, and I was sixteen weeks in hospital before I got about again. I was not then fit for active service; but as soon as I got my discharge from hospital, I made my way to London; and it was full two months longer before my leg got quite strong.

I had received my pay at Portsmouth; and there was some prize-money coming to me; but I was afraid to apply for it lest they should claim me again. So I sacrificed that, and tried to find a berth on board a merchantman; but it had to be done very cautiously, for the sharks, as we called the pressgang, were about everywhere. Men were wanted badly for the king's ships; and bounty-money was offered to induce sailors to join a ship-of-war. But as I said before, the navy had a bad name, and ten pounds bounty would not induce men to volunteer. To the disgrace of the naval authorities of that time, any one who could betray or kidnap a sailor into boarding a king's ship was entitled to the bounty-money. This gave rise to a class of men called crimps, who would pretend to be the sailor's friend, and with great secrecy would board and lodge him at a moderate price. When he had got a few sailors together, he would ply them with liquor, and bring the pressgang down upon them. Another set of rogues would pretend to be private shipping agents, offering every inducement for men to apply to them, and conducting everything with the greatest apparent caution, lulling their victims into confidence, until they could draw by appointment eight or ten together at some secret rendezvous, under pretence of meeting some captain in want of men; when, to the consternation of the sailors, they would find themselves in the hands of the king's officers. This was not always quietly accomplished; a desperate resistance would be made as often as not; but the king's men were prepared for the worst; and the poor fellows would be forced, bleeding and for the time disabled, on

board the tenders in the river waiting to receive them.

Where St Katharine's Dock now stands was at that time covered with streets and houses, mostly inhabited by persons in some way connected with waterside business, and much frequented by sailors and captains of merchantmen in want of hands. Every one there was ready to earn a pound or two from a captain or a sailor, by secretly bringing the two together. This was of course known or suspected, and a sharp look-out was kept by the king's men; while on the other side, a careful watch was kept for them, for they were not regarded with any special favour in that quarter. The people were mostly poor; but they could be trusted. They hated crimps and pressgangs; a quiet resistance and a general desire to thwart all pressgangs was the prevailing feeling, and men felt pretty safe in that neighbourhood. If a man was in danger, the first open door he could find would be a sure refuge. It would be closed upon his pursuers, who could demand but not force an entrance until the demand was refused; but in the meantime the fugitive would be passed over backyard walls, or along the roofs into another house, where he would be safe; for the search, according to law, could only extend to the premises the man had been seen to enter. In one case, a sloop-seller who did a good stroke of business secretly between merchant captains and sailors, had a room on his second floor where a hole was cut through the wall into the next house just wide enough to admit a man to pass, and neatly papered over, so as not to shew. If the pressmen entered his shop unexpectedly, Jack would fly to the stairs and mount to his room. If he gained it, he was safe, though his pursuers entered with him. It was furnished as Jack's bedroom; and all he had to do was make a show of resignation to his unlucky fate, humbly request a moment to change his jacket or pack his chest, which—the man being apparently secured—would be readily granted. Jack then, watching his opportunity, would spring through the wall into a dark cavity, having an outlet into the next house; and before his astonished friends could realise the situation, and grope their way into the dark chasm, Jack had locked the outlet behind him, and was safe away.

One day I had been down Shadwell way to meet the captain of a merchantman and settle with him for a voyage to China as mate. Everything was arranged, and I had agreed to go on board the next day. The ship had hauled out of dock, and was moored in the river. I was pleased at the prospect of getting away again, and was making my way back to my lodgings in the neighbourhood of the Minories. I had got into Ratcliff Highway, at that time a busy and important thoroughfare of shops, doing business in every description of marine stores from a sail-needle to a best bower anchor. I was quietly threading my way through the throng of people, when I was brought up short by the sound of a boatswain's whistle just before me. I knew what it meant, and caught sight of the leader of a gang skulking in a doorway and whistling his men together. I guessed I was in for it, but determined to do my best to get clear. I knew the neighbourhood well, and made off, at my best pace, through the narrow lanes and by-ways leading to the

water-side, the whole gang after me in full chase. I knew if I could reach the locality of Wapping I should have a chance of shoving off in a waterman's boat, and of getting on board some ship, or finding a hiding-place somewhere. I was nearly spent, and could not have kept up much longer, when I rushed into a hemp wharf. Bales of that material were stacked in every available space, with openings between each stack, forming a labyrinth of passages from one part of the wharf to the other, and affording some dark nooks where a man might hide. But I knew my pursuers were too sharp to be baffled by any hiding-place I could find there. The semi-darkness caused by the bales of hemp piled up to the roof, and the noise of men at work, aided for a few minutes to confuse my followers, who had every obstruction thrown in their way; for instinctively every one guessed the nature of this sudden rush of men into the scene of their labour. It was not the first time that such an inroad had been made into their premises, despite the notice at the entrance—'No admission except on business.'

There was no other outlet from the wharf except that by which I had entered. I concluded I had bolted into a trap, when I caught sight of a double plank gangway leading from the wharf to the barges unloading alongside. In desperation, I rushed down it, and the thought flashed into me to pull the planking away from the wharf, so that I could not be followed. How I did it, I cannot tell, for it was beyond any one man's ordinary strength; but despair, I suppose, gave me for the moment superhuman power, for I managed to trip out the bottom sufficiently for the top to clear the edge of the wharf, when it slid and crashed down into the mud. As it fell, my pursuers reached the spot I had left, and perceiving the trick I had played them, in their rage hurled loud threats of vengeance after me, as they saw me springing from barge to barge along the wharfsides. Pursuit being hopelessly cut off in that direction, they could only go round and scatter themselves through the wharfs, where it was thought likely I should make an attempt to hide or gain the street again.

I knew my pursuers were in hot anger in being thus checked when they had so nearly run down their game, and would exercise all their ingenuity and strain every nerve to secure my capture. From some of the wharfs along the quay-side they would soon find a way down on to the barges; but while they had to go round to the front entrances, I had a clear field at the back. I had but a faint hope of escape. If a boat had been moored to any of the barges, I should have jumped into it, and taken my chance of getting across the river before they could find means to follow me; for no one would willingly have lent them a boat; and any waterman—if one could be found—had too much sympathy for poor Jack to engage in the chase. But no such chance of escape presented itself. There was nothing left for me but to land somewhere and trust to chance. Moments were precious; for as I looked backward I saw my pursuers appear in ones and twos at the edges of the different wharfs I had passed. I noticed in passing one wharf that a fixed perpendicular iron ladder faced it, up which I might have gone; but I should only have been running into the arms of



my foes to have ascended it; for in a few minutes they would reach that wharf, and make use of it to descend. As luck would have it, a lighter laden with barrel-staves was unloading, by means of a crane, at nearly the end of the line of barges I was upon. I reached it just as the word was given to hoist; and seizing the chain, I sprang upon the ascending load of wood, and was hoisted up with it. My pursuers had reached the wharf with the iron ladder, and were descending, when they caught sight of the load of wood and me on it, swinging in the air. It was mortal aggravating to them, I admit; for they were laughed and jeered at by the bargemen; and I knew I should get a rough handling if I fell into their hands. They raved horribly as they saw I had escaped for the second time at the moment they thought they had made sure of me. Nor was it of any use for them to try to follow that way, for there was no means of ascending but by the crane; and that they well knew would not be let down for the accommodation of hoisting them up. One fellow tried it, and they let him quietly mount the next load; but half way up the men above stopped working the crane, and left him swinging there until he was released by his companions, when they found him some time afterwards fuming with rage.

When the crane swung round with the load upon which I came up, I sprang off, and found it was a cooper's wharf. Men were busy all about at their work; loose heaps of staves and piles of hoops stood about in all directions. It seemed the worst place fate could have landed me at, for concealment; but seeing a stack of large wooden hoops, seven or eight feet high, standing in the middle of the place, I scrambled to the top, and dropped down inside, where I lay curled up at the bottom thoroughly exhausted and worn out, feeling that I must abandon myself to my fate. I had been there barely a minute, when some of my pursuers rushed in, panting and blowing; others followed, running all over the place, searching every corner, and turning up half-finished barrels and casks upon which men were at work, expecting to find me under some of them. I could see through the chinks of my hiding-place all that was going on; but I lay still as a mouse, scarcely daring to breathe. I had been seen, of course, by the coopers. They had guessed in a moment the horrid game that was on foot, and though they might not resist the search, they pretended to shew ill temper at having their work interrupted in that way. Some bad words were exchanged, and a general row seemed imminent; when the foreman called out: 'Go on with your work, men, and let them search where they like.' At the same time, by way of shewing that he meant it, he trundled a barrel to the side of the hoop-stack where I lay concealed, and mounting on it, called a man to help him down with some of the hoops, which he commenced to leisurely take off the top. It was just the presence of mind on his part that suited the occasion; it threw dust in the eyes of the searchers, who presently abandoned the wharf as a place where I could not have found refuge, and proceeded to seek elsewhere. 'All right, my boy; lie still,' was whispered through to me; 'they are done this time.'

I sat up and breathed more freely, thankful for my escape so far. A sound of increased activity

and hammering went on through the wharf, and I was left alone, feeling pretty secure for the present. But how to get clear away was the difficulty that haunted me; for I knew my enemies were far too exasperated to give up the game as hopeless. They knew I must be in hiding somewhere along the wharfs; and though I could not be traced, a sharp watch would be kept outside, to prevent my getting away; for the gang were wild and savage at being thus balked of their prey. Some two hours had passed since I had dropped into my hiding-place, and it was time for knocking off work and closing the wharf. Some of the men had been out and in, helping to load carts, and with half an eye, as the saying is, could see that the coast was not clear; but the kind-hearted fellows were at no loss what to do. A few went out at a time, some going one way, some another. When they had nearly all gone—and the going was purposely spread over a much longer time than usual—the night-watchman came, and having received his instructions, the gates were closed. Then coming up to my hiding-place, he said: 'Now's your time, my man; here's a boat alongside waiting for you.'

I was glad enough to get out, for I was cramped and stiff. Two of the men who had gone out first, when they got clear of the locality, had obtained a boat, and had come round. It was a planned thing by the foreman. They rowed me up stream, and put me on shore over the water, and with a hearty shake of the hand, bid me God-speed. So I got clear off that time; but it was a narrow escape.

#### A LEAF FROM A CEYLON NOTE-BOOK.

SOME years ago, while quartered in the island of Ceylon, I left Kandy one fine morning at gun-fire, in company with some brother-officers who were desirous of witnessing a sight, which we were assured would amply repay us for the fatigue of a very rough thirty-mile ride through dense jungle in a tropical climate. The sport to be witnessed was that of elephant-decoying. The kraal into which the animals are decoyed, and which I shall describe presently, was situated not far from the banks of the fine river that flows by Kandy; it was in the midst of a dense forest, far away from any human habitations, and as some of us afterwards found out to our cost, in a very hotbed of malaria and jungle-fever. We despatched our horses to a ferry some twelve miles on, where the road dwindled to a mere jungle-path, impassable for a carriage, and even difficult for equestrians. I had barely time to snatch a mouthful of breakfast when the palanquin-carriage was announced, and off we started, I consoling myself with the prospect of catching up a coolie with provisions and beer, whom I had sent on. I never saw him again. The temptation was too great. He and some boon-companions demolished my prog, made free with the liquor, and absconded.

The road—if road it could be called—was a mere mountain-path, at times hardly distinguishable; and so covered with stones and thorny bushes which pierced the flesh at every step, that had I known of it, I should have preferred walking; but my gallant steed, hired for the nonce from some Arab dealers, would not lead

a step. We jogged on merrily enough in other respects for some way, as the trees were very lofty, and so thick overhead that the blazing rays of the sun could not penetrate through the dense foliage. The forest scenery was simply magnificent. Imagine a wilderness of the most splendid trees in the world, running up for seventy or eighty feet without a branch, and then spreading out in a glorious green canopy overhead, which both tempered the fierce rays of the noontide sun, and also moderated the glare so distressing to European eyes. One tree in particular filled me with admiration; it was a lofty forest tree of the largest size, with but few branches until near the top, and at the season I refer to without leaves; but ample amends were made for their absence by a display of most magnificent scarlet blossoms, which completely covered it. They were apparently full of honey, as the air was alive with hosts of bright-coloured birds, busily employed in catching the insects attracted by the sweet food. Green parrots, the yellow and white mango-bird, and many others that I was unacquainted with, formed a *tout-ensemble* of the most gorgeous description. Swarms of monkeys, and now and then a sulky old boar or a timid deer, varied the scene.

When about seven miles from our journey's end we lost the path amongst a lot of rice-fields. However, after a long search, one of our party, who had been out shooting in that district, remembered that if we kept to the left we were certain of hitting off the river before long, where we might meet some one to guide us. As luck would have it, we soon caught sight of an inquisitive, shining black face staring at us from a cocoa-nut tope. Never did I greet a nigger with so much delight before. Matters did not seem much improved though. As the river was very wide and rocky, full of treacherous holes and, as the natives told us, abounding with alligators, the predicament was not a pleasant one. But our horses were knocked up with the heat, and our friends, our kraal, and last, though in my case certainly not least, all our provisions were on the other side. The ferry was some miles up the river—far too distant for us to think of. So at it we went. Some natives crossed to assist us. Each black man took a white one in tow, who in his turn led his horse after him. Some of the scenes were most ridiculous. Sometimes the pony slipped, and pulled his owner in, who pulled the native after him, or the nigger pulled his master in, who naturally gave his steed the benefit of the bath, as it would never have done to let go the bridle. One of our party was roaring with laughter at another who had just had a glorious upset, nigger, horse, and all, when suddenly his mirth was checked by a similar mischance happening to himself.

However, barring the wetting, we got safe across, and I thought I would enjoy a bathe, so I left my party to proceed without me, intending to join them when lunch was ready. My clothes being wet through during the passage of the river, and making tolerably certain of meeting no one in that remote part of the country, I mounted my pony in veritable light marching order—namely, straw-hat, shirt, and boots; and very pleasant and cool was the aforesaid costume, and one that you would gladly have adopted, O my reader, under similar circumstances, and under such a sweltering sky. I had about three miles to go, and rattled

along, both horse and rider being thoroughly refreshed by this time; when all of a sudden my attention was attracted by a low but energetic whisper apparently coming from the clouds: 'Mahatmia, Mahatmia, Allia—Allia!' (Master, Master, elephants!) On looking up, I saw some twenty natives perched up high above me, making earnest signs for me to come up to them, and pointing along the path ahead of me and repeating the word 'Allia,' thereby giving me to understand that the animals were close at hand. I lost no time, but rode to a tree where a large jungle-rope—a species of giant creeper common in Ceylon—was hanging from a bough. Up I went like a lamplighter, leaving Master Pony to take care of himself, and utterly regardless in my haste of my attire, or rather want of it. And lucky it was that I did so. Hardly had I got well up and seated myself upon one of the branches, when round the corner came first one huge elephant, followed by another, then a third. Eleven more succeeded, and passed close under the tree where I was seated without, however, taking more notice of me than by tossing their trunks in the air, and emitting that peculiarly sharp scream commonly called 'trumping.' I soon got down, caught my pony, and set off as hard as I could for the kraal, not a little afraid that some more of the monsters might be in my way, from whom I might find escape more difficult. I got in, however, without any further danger or alarm, but half-dead with hunger and thirst.

The kraal was an inclosed space of some two hundred yards each way. The fence was composed of large trunks of trees, sunk into the ground, and of about sixteen feet in height. At one end was the entrance, about twenty yards across; at each gate-post were large trunks of trees, supported in an upright position by strong ropes attached to the surrounding trees. When the elephants enter, these ropes are cut, and down come the huge trees across the passage, effectually barring all retreat. We encamped in one of a row of huts hastily run up on the leeward side of the kraal, and at some distance from it, as the power of scent is particularly keen in an elephant, and if once a panic is raised, they would all rush madly away, and be never seen again in that locality. In the immediate vicinity of the kraal, and commanding a good view of the whole proceedings, were most extraordinary nests, constructed high up amongst the branches, and of sufficient dimensions to accommodate most of the party. They were thus made: a number of good stout poles were laid from the branches of one tree to another, some sixty feet from the ground, and carefully made fast; others were then placed across them, and side railings four feet high were added for security. These last were interwoven with leafy branches, which effectually concealed the occupants; a ladder of long bamboos completed the thing; and thus were constructed veritable crows' nests, admirably adapted for a good view of the proceedings combined with perfect security. The kraal was a government one; and about two thousand natives had been employed for more than a fortnight in driving the adjacent country; by day they had white wands, and at night torches. The elephant is a timid animal when not provoked or wounded, and the above simple means were amply sufficient to prevent the animals from 'hearing back.' On

this occasion, by good management a large body of elephants had been driven slowly into the neighbourhood of the kraal. The excitement was getting intense; every crash of a falling branch or the chattering of the large monkey common to these woods, made one start, and gaze expectantly in the direction of the elephants.

At last, when our patience was well-nigh exhausted, a fine herd was seen in the distance slowly approaching, under the guidance of three or four decoy elephants, who were employing every soothing art to induce the leaders to accompany them into the kraal. Strange to say, the elephant in its captive state seems to take absolute pleasure in decoying its wild congeners into the kraals, and in subsequently aiding in making them captive also. About forty had entered, when the rear-guard were seized with a panic and bolted through the line of beaters. The entrance was thereupon immediately barred, and those that were within made safe. Then came the fun of the thing. A decoy elephant cautiously approached the nearest wild one, its mahout (driver) walking on the off-side, and timing his movements so as to be always concealed by the fore-leg of his animal. With admirable tact, after many attempts the decoy persuaded the captive to raise one of its hind-legs, which was mainly brought about by the former tickling the wild elephant with its trunk, and so causing it to lift its leg. A noose was immediately slipped round it by the adroit attendant, and the other end was made fast to a neighbouring tree, after which the poor animal was left to its fate; and its insidious visitors proceeded to another, whom they served in the same manner; and so by degrees all the best elephants were secured. The remainder were subsequently shot by the sportsmen who were there.

Almost the entire breaking-in of the wild elephant is starvation. When once his spirit is broken, he becomes almost as amenable to discipline as one that has been captive all his life. After some days of total abstinence from food and water, they are led out to drink between two tame elephants, and if any sign of obstreperousness is shewn, the unhappy beast is beaten most unmercifully by its conductors, who use their trunks in a most punishing manner. In a few days they are set to work, harnessed alongside of a steady tame elephant; and in an incredibly short time they fall into their routine of duty, and perform their work as well as their docile friends.

The Ceylon elephant enjoys a good name not only in Ceylon but on the coast for docility and intelligence. However, they are not always to be trusted, and at certain seasons they lose all command over themselves, and are extremely dangerous. I remember an incident which took place at a kraal at Kornegal, between Colombo and Kandy. Amongst the decoy elephants was a splendid fellow, belonging to the temple of Buddha at Kandy. He was one of the finest I have ever seen, measuring upwards of eleven feet in height, with a pair of tusks that would have made Gordon Cumming go crazy about. He was always rather queer-tempered, perhaps from being made so much of as a temple elephant; and fears were entertained that his behaviour might be bad, and that the sight of so many old companions in a wild state might injuriously affect him. The result may be anticipated. In the middle of the day, and in

the height of the excitement, when many elephants had been secured, a wild trumpeting was heard, and presently all eyes were turned downwards from the crows' nests to witness the spectacle of the temple elephant in full chase of his driver, who had given him some cause for provocation. The man held his own gallantly for a time only, just out of reach of the elephant's trunk; still there appeared hopes that he would gain the jungle and set his pursuer at defiance. All of a sudden he was seen to fall, having stumbled over the projecting root of a tree. In an instant the elephant, mad with rage, had gone on his knees, and to all appearance had impaled the unfortunate man. A shriek burst from all present, who were sickened at a sight which so miserably marred the otherwise successful issue of the day. But what was our joy when the man was seen to wriggle himself out from between the tusks of the beast, regain his feet, and before his adversary could extricate his tusks from the ground, again continue his flight! He was, however, pressed closely, but managed to reach a deep, narrow, and dry water-course, covered with thorns and briers, into which he immediately threw himself. The elephant kept hunting him by scent from above in a most clever manner; but ultimately we had the pleasure of seeing the poor fellow emerge a hundred yards below his pursuer and gain a place of safety. The elephant eventually had to be destroyed, as the day's proceedings had made him irreclaimably savage and dangerous.

Little did we anticipate how dearly we should pay for our sport. In a few days, numbers were prostrated with jungle-fever, two or three planters died, and an officer of the Ceylon Rifles barely escaped with his life; nor were the fairer sex spared; and there were sad complaints about the horrid doctors, who had made such guys of them by cutting off their luxuriant tresses, and in some cases by close shaving their heads. So you see even such grand sport as the above may occasionally be too dearly purchased.

## THE OLD POT.

### A STORY REFURBISHED FOR MODERN READERS.

Forty years ago there was not in England a man more respected than my uncle, Farmer Bloomfield of Stanley Court. Strange to say, however, he did not always occupy so high a position in the estimation of those around him; for it was not until his sun had passed the meridian and the shadows were lengthening that the tide of his popularity set in. In early life he had been left an orphan, and was placed under the care of a maiden aunt, whose idiosyncrasy was not without its effect in moulding my uncle's character. Reserved in his manner and eccentric in the extreme, he often became the object of ridicule. There was little in his personal appearance to call for remark beyond a most unusual development of the nasal organ, and this not unfrequently became the subject of rude jests. The presiding genius of the Club which met nightly in the parlour of the village inn, once facetiously alluded to it as his 'proboscis'—a circumstance which

gave rise to the name 'Boscis,' by which my uncle was afterwards known.

In nothing did his eccentricity appear more strongly than in the antiquarian phase of his character. He grudged neither money nor time in collecting curiosities of all kinds, valuable or useless alike; and being in easy circumstances, was able to gratify every whim. Modern improvements he despised, whilst his admiration for the antique knew no bounds. It was wearisome to listen to the history of the many objects around him; and his visitors rarely escaped these inflictions. Scarcely a week passed without an addition to his Museum, as I styled his home; and knowing the penalty of a call, the visits of his friends were few and far between. But to have exhibited signs of impatience during his recital of these interesting particulars would have stamped the individual in my uncle's opinion as unworthy of his notice. He had the most profound contempt for those who could not regard with admiration an object, however mean in itself, upon which old Time had left the indelible marks of his fingers. Poor uncle! How often he was victimised! Designing rascals often relieved him of a good sum of money for an article as worthless as themselves. But such was his confiding nature that he believed their representations, and valued the article in proportion to the brightness of the halo which their duplicity threw around it. Far and wide he was known as Bloomfield the Antiquarian, which, while it pleased his vanity, often emptied his purse; nor did he ever know how largely it was due to the irony of those who laughed at his credulity. And yet, methinks, that to have removed the scales from his eyes, and to have shewn him how miserably he had been gulled, would have robbed him of the happiness of his life. His ruling passion grew with his years, and at length amounted to a cupidity which not unfrequently led him into awkward scrapes. But he was suddenly awakened from these absurdities in a manner so remarkable, that he invoked my aid in reproducing a story often told by himself at his own fireside.

It was a sultry afternoon in the month of September when my uncle bent his steps across the common and through the meadows to visit a neighbouring farmer-friend. On the occasion of this visit, and just as he was leaving, after having partaken of the usual hospitalities of the place, he espied in a corner of the farmyard an old iron pot, nearly spherical in shape, which had formerly stood on three legs, but could now only boast of two. Owing to its unsafe condition, it had long since been disused, and had been consigned to its resting-place on the principle, that for all the ills of life prevention is better than cure. A somewhat minute inspection of its exterior revealed the figures 16, followed by something which could not readily be deciphered; and instead of concluding that these marks probably represented nothing more than the size of the article in ques-

tion, the great antiquary rashly concluded that the 16 with the obliterated marks represented nothing short of the date of its manufacture. A pot whose early existence was probably contemporary with Cromwell, could not be permitted to remain in such a place. Accordingly my uncle determined to transfer it to Stanley Court, there to keep company with the many relics of days long ago.

But his burden proved more inconvenient than he anticipated. After taxing his ingenuity to the utmost to discover a means of carrying it with a maximum amount of ease, it finally occurred to him that, inverted, it might rest on his head. Accordingly it was so placed, and my uncle proceeded with the queerest helmet that ever pressed the brow of a human being. His path lay along the bank of a small river, and so down to the mill. Here, it may be mentioned in parenthesis, lived an old sweetheart, who, out of patience, I suppose, in waiting for the 'question' from my uncle, had accepted his rival the miller fully twenty years before. Across the stream a dam had been constructed for the purpose of diverting the water to the mill, and thus a pond was formed at least five feet deep. The water often flowed over the dam, forming a beautiful cascade from six to eight feet in height; and when the water was low, people frequently passed over the wooden platform of the dam to save the walk to the bridge, which stood more than a hundred yards below the mill. But doubtless my uncle had another reason for selecting this route, a reason which received additional force from the strange appearance which he now presented.

As may be readily supposed, the action of the water had rendered the platform very smooth and slippery. Along this dangerous path, however, my uncle proceeded; but whether from the effect of the aforesaid hospitalities, or from the weight of the pot on his head, he became unsteady in his gait, and suddenly slipped. A fall of eight feet to the bed of the river was no joke; besides, such a fall could only end in the destruction of the pot. Now, divided attention is always to be avoided, where the possible issues are serious, as under even ordinary circumstances, a slip in such a place was no trifling matter; but with the object of his solicitude firmly fixed on his head, what wonder that his safety was doubly jeopardised. Be that as it may, the fact remains that he stumbled upon the slippery platform, and the pot *slipping over his nose*, enveloped his entire head! Practically blind, he was now less capable than ever of recovering his footing; and his attempts to do so ended in my worthy relative tumbling head first into the mill-pond. Thus was he brought literally face to face with an ignominious death, no better than that of the vilest cur which leaves the world with a stone tied to its neck. But the darkest hour is not unfrequently the hour of deliverance. It proved so here. The attention of Joe, the miller's man, had been attracted to my uncle before he reached the dam—by the strange head-gear worn by my relative. The unsteady gait, the slip, the fall, the plunge, were all observed; and having reached the pond as quickly as possible, Joe succeeded, after considerable difficulty, in extricating my uncle from his perilous position.



Whenever the old gentleman related the story to his friends, he moralised here on the vanity of human wishes. 'Yes, Nephew,' he would say, turning to me, 'that was the crisis in my history, not merely as regards the unexpected extension of my existence, but more particularly with reference to the folly which was the outcome of the mania which had seized me. I never felt how useless my life had been till Death stared me in the face under such ignominious surroundings. My punishment appeared to me as complete as it was deserved. Drowning seemed only the secondary cause of my death, the real cause being the ruling passion which had prompted me to possess the pot. The idea of dying with my head in such a position, humiliating though it was, bore no comparison to my thoughts as I felt the air rise in bubbles from the pot, in solemn mockery of my life, and thought how, in breaking upon the surface, they wrote my epitaph—"Emptiness."'

Having rescued my uncle, Joe carried him to the house of the miller, where he removed the wet garments, placed him in bed between the blankets, and applied those means for his restoration generally resorted to in cases of suspended animation. It was fortunate that Joe was familiar with the treatment, as he was the only person on the premises, and the nearest house was fully half a mile distant. He persevered in his efforts, and, ere long, was rewarded by returning consciousness. But the pot—the terrible pot, still canopied my uncle's head, in spite of every endeavour to remove it. 'The nose was the cause, you see,' the old gentleman would say, playfully tapping that protuberant organ with his finger; 'and appeared to be little short of a bolt, which defied the removal of that ungraceful head-gear.'

Now, of all places, the mill was perhaps the last which my uncle would have cared to visit under the circumstances. He could not endure the thought that the miller's wife, his old sweetheart, should witness such a spectacle, and was really distressed at the idea that her eyes might even now be resting on his misfortune. The old pot refused that assurance to him which his eyes would have supplied, and so he had to rest content with the repeated avowal of his benefactor Joe: 'Keep yer mind aisy; the maister and his wife and the whole lot of 'em be gone to the fair. But don't ye be afeard on the missus. She be mighty kind, and ud help ye heaps if she was here. And now ye be safe and a-comin' round a bit, I can't help a-laughin' just a little bit. I zeed ye go in head-vurmost, right down like, and yer legs a-kickin' up zummat, like the ducks when they goes a-divin' arter what 'em can catch in the pond. Then there's that there pot about yer head. La! I never zeed such a night-cap in all my born days. Don't think I'm a-makin' fun on ye; but I've a tried to get'n off, and 'er won't come, leastways without a piece o' yer nose, and I reckon you don't want to spare a slice o' that.'

With these and such-like speeches Joe enlivened his patient, introducing parenthetically such hearty bursts of laughter, that my uncle speedily recovered himself; but his increasing strength only intensified my uncle's desire to get clear away before the miller and his wife returned. As a first step in this direction he emerged from the blankets in which, barring his head, he had been enveloped, and with the

assistance of Joe as his valet, he dressed in the garments which that worthy supplied. There was nothing remarkable about these, with the exception of a smock-frock of snowy whiteness, which extended to my uncle's feet, and played a not unimportant part in the sequel of the story.

But here arose a difficulty. Joe being left in charge of the premises, could not leave until his master's return. Every argument which his ingenuity supplied to detain his patient, and every protest against my uncle's injustice in believing the miller's wife capable of aught but sympathy, fell upon my uncle's ears 'like water on a duck's back.' Finding that he could place the pot in a position which enabled him to see his feet, and consequently the path bit by bit along which he had to travel, besides being able to raise the plaguy apparatus sufficiently to enable him to breathe; and seeing that Joe could not accompany him as a guide and protector, he determined to make the attempt to reach the village alone. Being naturally anxious to avoid, as far as possible, the public gaze, all thought of taking the turnpike-road was abandoned, though he need not have been under such apprehension, for who amongst the many returning from the fair would be likely to recognise in that strange figure Farmer Bloomfield of Stanley Court!

Indeed his objection to this route might have been overcome but for his dread of meeting the miller and his wife, who—so he thought—might possibly recognise the garb which enveloped him, and would naturally feel unpleasantly inquisitive about the individual within it. Yet a walk of three miles through meadows and across a common after seven o'clock on a September evening, under such circumstances, appeared well nigh as possible for a blind man. Anything, however, appeared preferable to the disclosure he so much dreaded; and so, trusting to his circumscribed vision, he departed with slow and steady steps along the old familiar path, determined, by a happy thought, to make his way to the village blacksmith, whose ingenuity he had no doubt would speedily remove the encumbrance.

The keenest foresight is, however, unable to anticipate the circumstances which may befall us. For some time all went well, and the antiquary's progress, though slow, was sure. But what with the sultriness of the evening, the defective ventilation inside the pot, and the weight of that at other times useful article, my uncle was compelled to sink to the ground in a faint, just as he had reached a shallow brook, over which he had to pass; and there he lay until consciousness returned. How long he had been in this position he did not know; but he soon became painfully aware of the fact that the shades of night had closed around him. Nor was his anxiety diminished as a thunder-storm burst over his head. Heavy clouds overspread the sky, and deepened the darkness; so that when my uncle rose to his feet, he found the path completely hidden from his view.

In so helpless a condition, what wonder that he wandered from the familiar track! To add to his discomfort, the rain came down in torrents; whilst the lightning, flashing around him, filled him with a new terror. Still he continued to trudge his weary way; and at length, to his intense delight,

he heard the faint but welcome sounds which came from the anvil of the village blacksmith. Sweeter music he had never heard. He listened intently to the sound as it was wafted across the gloomy common, and with his ears as a pilot, walked on, cheered by the fact that every step brought him nearer to the man who would remove the load from his head—and heart. He had not proceeded far in the direction of the smithy, when he became aware of the approach of a man, and in the snatches of song which fell upon the darkness, he recognised a familiar voice. It was the village schoolmaster, who, being fully occupied by day in keeping other people's spirits down, resolved that his evenings should be spent in keeping his own spirits up, which he succeeded tolerably well in doing at the Club which met nightly at the village inn. A load of anxiety fell from my uncle's heart as the schoolmaster approached him. But alas! the relief was only momentary. Whether the darkness hid my uncle from his sight, or whether he was so occupied with his thoughts as to be unconscious of such a person's presence, we need not stop to inquire. A vivid flash of lightning for an instant lit up the scene when they were but a few yards apart, revealing my uncle shrouded in garments of snowy whiteness; the song suddenly ceased; a shriek rent the air; and the tremulous voice of my belated relative, intended to remove the schoolmaster's fear, served only to quicken his flight across the common to the village inn, which he had left only half an hour before. With a face ghastly pale, with drops of perspiration like peas standing on his forehead, and trembling and gasping for breath, he threw himself into a chair, perfectly overcome and speechless. In the hands of the landlady he recovered in a few minutes sufficiently to explain the cause of his terror. He had witnessed that night, he said, such a sight as never before met his eyes. In passing the spot on the common where, in the remembrance of most of his hearers a murdered man had been found—a spot he confessed he never passed at night without nervous excitement—just as he had commenced a song, by way of diminishing the loneliness of his situation, a horrid being stood before him. It was clad in white, but had a head as black as night, from the top of which projected two short horns. It was impossible to be mistaken. A flash of lightning revealed all this too plainly, and seemed for an instant to dance around the head of the Satanic spectre. Besides this, a voice, sepulchral in its tones, plainly called him by name. Surely the evidence of two of his senses could not be rejected!

His associates at the inn gave a ready ear to the statement, and after partaking of some Dutch courage, at the earnest request of the schoolmaster they consented to accompany him across the common to his home. Amongst them was Joe, who, on the return of the miller, had walked to Stanley Court by the road, professedly to bring my uncle's clothes, but in reality from a feeling of anxiety about his safety. Finding he had not returned, Joe started off in search of the wanderer, and on his way stepped into the village inn just in time to hear the schoolmaster's account of the ghost on the common. He might easily have removed the schoolmaster's fears; but being of a frolicsome turn, and wishing to test the courage of

his body-guard, he remained silent, and followed them unobserved when they left the inn.

Meanwhile the ringing sounds from the anvil had guided the exhausted wanderer, and before the party from the inn had proceeded far, the supposed ghost was encountered. Dutch courage proved unequal to the shock, and Joe had the satisfaction of seeing them scamper away as fast as their legs could carry them, each one doubtless as much overcome as had been the schoolmaster when he sank speechless into a chair but a few minutes before.

\* The faithful Joe, however, was soon at my uncle's side, and under his guidance the smithy was reached. A consultation now took place as to the best means of effecting a release; and nothing appeared so practicable as to place the pot on the anvil, and with a sharp blow from a hammer, to shatter it into fragments. A hazardous proceeding, but desperate ills require desperate remedies. It was therefore not without forebodings of evil that my uncle, supported by Joe, placed the pot as directed. Down came the blow; and my uncle stood erect, a happier and a wiser man. The kind-hearted and faithful Joe lived long in my uncle's service as farm-bailiff, and never wanted a friend as long as the old gentleman lived; and in repeating these extraordinary proceedings to eager listeners, he would assure them that 'he never zeed sich a nut afore, nor sich a kernel!'

#### THE MONTH. SCIENCE AND ARTS.

CHLOROPHYLL (the green colour) and starch and cellulose are developed in plants by the 'dissociation,' as chemists say, of carbonic acid and water in the cells of the leaves. The active power in the operation is sunlight.

Is the power confined exclusively to sunlight? Sunlight contains actinism; so does the electric light; and, as is well known, the actinic rays with their chemical energy play an important part in the ripening of grain and fruit. Mr C. W. Siemens, F.R.S., has made experiments at his pleasant country residence near Tunbridge Wells, which lead to the conclusion that the electric light may be employed with advantage in aiding or supplementing sunshine in the growth of plants, shrubs, fruit, and flowers. With a two-horse-power engine, and a dynamo-electric machine, making one thousand revolutions a minute, he produced a light equal to that of fourteen hundred candles, which, from a reflector fixed in the open air about six and a half feet above the ground, was directed upon a sunk melon-house. Pots were prepared with mustard, cress, carrots, cucumbers, and melons, and were divided into four groups. (1) was kept entirely in the dark; (2) was treated with electric light exclusively; (3) was exposed only to daylight; while (4) had both daylight and electric light; but the latter for not more than six hours in the twenty-four—namely from 5 to 11 P.M. The results were—(1) plants pale yellow, soon died; (2) light green, pretty strong leaves; (3) leaves of the ordinary colour and strength of daylight growth; (4) more strength, and the green remarkably rich and dark. In estimating these results, the comparatively short time allotted to the electric light must be borne

in mind, and also that as the experiments were carried on in cold weather, the effect of the light was weakened by the coating of moisture on the glass of the melon-house.

The next experiment was to place the electric lamp in the same glass-house with the plants, where during six successive nights they were exposed to electric light; commencing as soon as daylight failed, and ceasing at sunrise. The plants had thus no rest, but they did not suffer; and it was found that when the stove-heat was shut off, the heat from the electric light sufficed to maintain a temperature of seventy-five degrees in the house.

There remained now to try the effect in the open air. So far as it has been carried it confirms the previous results. Nine lamps suffice to illuminate three-quarters of an acre. Inclose this area with a wall, there will be shelter from winds, and vertical as well as horizontal space for crops of fruit and flowers. Mr Siemens is of opinion that in chilly summers the electric light would be very beneficial in securing the setting of the fruit-buds, and afterwards in ripening the fruit. If it develops chlorophyll, why not saccharine and aroma? That plants will bear constant light has long been proved by the three months of sunshine within the Arctic Circle. In Norway an acacia plant taken from a dark house and placed in the sunshine opened its leaves within two hours: an acacia plant in Kent behaved in the same way when exposed to electric light. Growing-plants also turn themselves towards it, and leaves are sometimes scorched as with sunshine.

Are we to have a new application of science in the form of electro-horticulture? Much depends on the cost. Where water-power is available for driving the electric machine, the expense will be moderate. Mr Siemens has read a paper on the subject before the Royal Society, and exhibited specimens of the plants above described, and of flowers, with obvious proof of the invigorating effects of electric light and sunshine combined. He promises to make known the results of further experiments, and we shall have much pleasure in communicating them to our readers.

Some excitement has been occasioned by the announcement that the diamond had at last been produced by a laboratory experiment, and thus verified the long-standing prediction that chemistry would one day find a way to that achievement. Some three months ago a chemist at Glasgow believed that he had made diamond; but his specimens failed on being tested. Now Mr J. B. Hannay, also of Glasgow, comes forward, and in a communication to the Royal Society describes the process by which real diamond can be produced. With that description before him, any competent chemist could repeat the experiment; but he would find it laborious and dangerous, for to resist the enormous pressure required, the operation is carried on in a coiled iron tube of small bore, but with walls two inches thick.

Mr Hannay was led to his discovery by a long series of experiments on the solubility of solids in gases; a question of rare interest for chemists. He found one day that when a gas containing carbon and hydrogen is heated under pressure in presence of certain metals, the hydrogen is attracted by the metal, and the carbon is left

free. When this takes place—to quote the description—‘in presence of a stable compound containing nitrogen, the whole being near a red-heat, and under several thousands of atmospheres of pressure, the carbon is so acted upon by the nitrogen compound that it is obtained in the clear transparent form of the diamond.’ The specimens thus obtained have been tested, and with conclusive results as to the reality of their substance.

From the scientific point of view, Mr Hannay's success is very important. It enlarges the field of experiment, confirms theory, and throws light on certain obscure questions. But it will not cheapen diamonds; and the wearers of and dealers in the sparkling stone may spare themselves anxiety and alarm. The diamonds hitherto produced are not larger than grains of sand; and when coiled cylinders of iron four inches in diameter, having a half-inch bore through the centre, burst in ‘nine cases out of ten’ under the almost inconceivable pressure, it is obvious that the manufacture cannot be rapid. In all probability we shall have further communications on this subject before the end of the session.

A French chemist has examined a large number of specimens of rocks, of sea-water, and mineral water, and found lithium, more or less, in all of them; also in the water of salt-marshes, and in the deposits left by evaporation of sea-water. In certain mineral waters lithium is so abundant that it ‘could be detected in the evaporation residue of a single drop of the water.’ This fact, taken in conjunction with previous investigations, strengthens the experimenter's theory that ‘saline waters are mineralised at the expense of saliferous deposits left by the evaporation of ancient seas.’

By a recent calculation it is shewn that the quantity of petroleum produced in Pennsylvania since the first discovery of the oil in 1859 amounts to 133,262,639 barrels, valued at more than 340,000,000 dollars.

Professor Schorlemmer of Owens College, Manchester, has in his researches into the chemical product called ‘aurin,’ ascertained that it can be transformed into aniline blue, and that all the aniline colours can now be obtained from phenol or carboic acid.

In the *Journal* of the Chemical Society a new process for condensing the fumes of lead-works is described, and it is so effectual, that ‘lead or copper smoke will be rendered not more pernicious than that from ordinary chimneys.’ This will be good news for many a one.

By a series of observations with a delicate spirit-level, Mr P. Plantamour has found that in the Canton de Vaud there is a periodical oscillation of the ground, the rise and fall occupying each about six months. The amount is small, twenty-eight seconds of the scale employed, but was definitely made out. He believes that a slight diurnal oscillation is also perceptible, and that there may be some relation between the combined movements and the daily temperature. He suggests that observers in other parts of the world should make similar observations, and thus ascertain whether the oscillations are general or local. The observations would have to be continued through a number of years before trustworthy conclusions could be drawn, and some connection might then appear between the oscillations and the influence of terrestrial magnetism.



Last year an ingenious American at Chicago invented an *audiphone*, by which deaf persons could be surprisingly aided in hearing. The thing thus named is made of very thin caoutchouc, and resembles the hand-screens used by ladies when sitting near the fire. The bottom and two sides are rectangular; the top is curved, and from the centre of the curve, strings which can be stretched tight, pass downwards, and are fastened to the handle. A certain amount of tension is thus imparted to the instrument. If then the end of the handle be placed against the upper teeth, sounds of music and of a loud voice can be heard even by the deaf and dumb. These facts have been proved by numerous experiments.

The price of the audiphone is from ten to fifteen dollars, and films of caoutchouc are very brittle in cold weather. A Frenchman set himself to discover some material that should be cheap and durable, and have the same acoustic efficacy, and found it in a peculiar fine elastic cardboard, exceedingly thin, which requires no strings nor fixed tension. It may be held in a slit in a small thin piece of hard wood, which is to be pressed against the upper teeth. Instruments thus prepared were tried on deaf and dumb pupils with the happiest results. They heard the notes of a piano, and could distinguish spoken words; and persons accustomed to the use of an ear-trumpet find the audiphone more serviceable and less irritating. The apparatus was described at a meeting of the *Société pour Encouragement de l'Industrie Nationale*, at 44 Rue de Rennes, Paris.

In the *Transactions* of the Philosophical Society of Adelaide is a paper on the Subterranean Drainage of the Interior of Australia: an interesting question in a country where vast quantities of river-water disappear in a way not yet satisfactorily ascertained. For example, the Owens river, with a flow of five hundred and ninety-six cubic feet a minute, falls into the Murray. The Murray above the confluence delivers two thousand six hundred and sixty cubic feet a minute; but below the confluence, not more than two thousand nine hundred and seventy-five cubic feet, which further down is reduced to two thousand and eleven cubic feet. The loss in the course of a few miles is thus eight hundred and fifty cubic feet of water a minute.

Other examples are to be found in the rivers of the hilly region, fed by perennial springs, and sending down prodigious quantities of water in the rainy season; but fail during the summer season, or 'empty themselves at nowhere in particular in the interior.'

The ordinary explanation of the disappearance of the water is that it is evaporated; but, as is shewn, the amount of the rainfall is by far too large for the evaporation theory. A large part of the interior of Australia is what geologists call 'tertiary,' resting at its edges on older strata; a vast underground reservoir is thereby formed, and into this reservoir, as certain experts contend, the water finds its way. Only by boring artesian wells could this view be tested. Should water be found, the interior of Australia will suffer no more from droughts, and green pastures and fruitful fields will overspread the now scorching landscape.

Mr W. J. McGee having had to survey and plot a large number of the mounds which have so long puzzled the anthropologists of the United States,

'has been struck by the constancy of certain dimensions and the harmony observable in all, whatever the variation, indicating to a certainty the use of a unit of linear measurement in their erection.' Hereby an interesting question has been raised: What was the value of that unit?

A paper on Architectural Competitions, read at the Institute of British Architects, had for its object to shew the harmful effects of competitions on the profession at large, and suggest to the Institute to 'take some practical steps to remedy the evils acknowledged to exist.' In the discussion that followed, Professor Kerr made a few remarks, which may perhaps be allowed a place in such a summary as the present. Having protested against the notion that competition favours modest merit, the Professor said: 'Modesty will wait; it is immodesty that will not. Merit can wait; it is demerit that cannot. The man who, in professional life, is the most fortunate is he who starts without false aids, without fallacious incentives, without self-conceit and without hurry. Waiting patiently, working diligently, and walking uprightly, until he has reached the age of matured usefulness, he then attains that position which matured usefulness alone can permanently hold, because it alone is worthy to hold it. In plain language, at the age of forty (which is recognised as the earliest period at which a man may expect to acquire a position in a profession as distinguished from a trade), he finds himself beginning to know the world well; youth has passed into full manhood, and he has five-and-twenty years before him during which to employ his energies at their best, and to win respect for a meritorious old age.'

#### THE BEGGAR'S DOG.

RAMBLING one day in London city,  
I saw a dog that raised my pity,  
A wretched cur all skin and bone,  
That in the gutter crawled along;  
And in his mouth (I smiled at that)  
He held an old and crownless hat.  
With quick and deferential eye,  
He watched the bustling passers-by,  
Who in their haste, as on they fared,  
Nor cast a glance at him nor cared.  
Yet some, when they had passed some paces,  
Would halt with grins upon their faces;  
His story was so plain indeed,  
So clear, that he who ran might read:  
'A beggar's dog—his master dead—  
The beast still carries on the trade,  
And trusts by diligence and care,  
The public patronage to share.'  
I sauntered on; but as I went,  
My thoughts upon that dog were bent.  
'Behold!' I said in meditation,  
'The force of custom, education;  
And though we laugh at him—'tis sad—  
Some human plans are quite as bad.  
How many schemes in this same town  
Are merely hats without the crown;  
Ways indirect, but most complete,  
Of tossing money on the street.' J. SANDS.

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